

which suddenly diverges into the substance of the wall-buttress the drift of the vaulting, to the triforium-arcade, which bestows economical use and elegance to the interior of the fabric, while it releases from unnecessary weight the great columns supporting the clerestory, the energy of the vaulting having passed over its head to without the building.

"The modern man of taste would imitate the groined vaults of Ptolemaic Greece, merely because they are groined, but the Frenchman groined them because he would not refuse from thrust the window-heads, voids, and other weak parts of a fabric."

"But Mr. Bartholomew neither is, nor assumes to be, the discoverer of this truth. It has by many of late years been laid down with more or less distinctness: but we believe that the person who may most fairly claim the merit of having first pointed out the true principles of architecture, by attaching all importance to constructive arrangement and limiting the application of ornament to the 'decoration of construction,' is the French architect, Durand. So long ago as 1819, he published his *Précis des Leçons d'Architecture*, which are founded altogether on this theory: we shall translate from his works a few passages, which will make this sufficiently plain:—

"Whether," he says, "we ask the decision of reason, or examine the great monuments of the art, it is evident that to please is not the end of architecture; architectural decoration has never been its object."

Again:

"We are far from thinking that architecture is not capable of exciting pleasurable emotion; we say, on the contrary, that it is impossible it should not please, whilst treated in accordance with the true principles. Does not nature connect a gratification with the fulfilment of our wants; and are not our most lively pleasures the satisfaction of our most imperious necessities? How then can architecture which satisfies so great a number of our wants, as art to which all other arts owe their existence, fail to be a source of pleasure?"

"No doubt the grandeur, the magnificence, the variety, the picturesque, and the character which we observe in buildings, are so many beauties, so many causes of pleasurable emotion. But is there any necessity for running after these? If an edifice is arranged in a manner suitable to the purpose to which it is destined, will it not be sensibly different from a building destined to a different use? Will it not have a marked character, and what is more, the proper character? If the different parts of the building, intended for different uses, are arranged in the manner proper to each, will they not necessarily differ from each other? Will not variety constitute one of the characteristics of the whole? If the disposition of all parts be made in the most economical, that is to say, in the simplest form, will not its grandeur, its magnificence be enhanced, because then the eye will embrace at once the greatest number of its parts? Where then is the necessity of running after these partial beauties?"

"It is then with the arrangement only that the architect should concern himself,—even if he regard decoration as all in all, and make it his sole study to please the eye; because that decoration cannot be called beautiful, cannot give rise to any real beauty, which does not result from an arrangement the least wasteful and the most convenient."

"It is plain then that Welby Pugin is not the Columbus, nor even the Vesputi, who has led us to the comprehension of the true principles of Gothic architecture."

"In his condemnation of the pseudo-Gothic of the day, he was wisely and well; and we can almost sympathise with his enthusiasm in behalf of the old English styles, when practised upon sound principles. It would be well if he confined himself to this, and did not break out of his province to take part in church controversy, to lament over the 'laureate schism' from which he has so lately been himself delivered, and to trace the decline of Christian art to the dark times of Pagan and Protestant ascendancy." It has grown tender, indeed, in his comments on the schism, being filled with a most Catholic love that all the

Pope's stray sheep will shortly come bleating back to that pasture which he himself has found so fat; in the meanwhile it is gratifying to him to observe that even Protestants are beginning to build good churches; and without any Catholic qualms of conscience, he is ready to lend his professional advice and assistance towards the erection of such edifices, from the full conviction, no doubt, that though the costs may be defrayed by heretics, the buildings themselves will ere long be made available to the purposes of the true faith.

"The attempt to connect the decline of Gothic art with the introduction of Protestantism is absurd, and leads the writer into many inconsistent statements. If the one were a consequence of the other,—if the want of consistent principles, justly complained of in the architecture of the last three centuries, resulted from the want of consistent principles in the Protestant religion,—how is it that the art declined at once in countries that threw off, and in those that retained, the papal yoke? How is it that England, the stronghold of the new heresy, according to Mr. Pugin's own confession, was the last in which the 'true principles' were entirely lost sight of? It is to be observed that the Reformation had affected all the states of Europe, though it became established as a chronic disease only in a few; let us ask, then, how it was that Christian architecture was never fully developed in Italy, the head-quarters of Romanism, and, least of all, within the papal territories? The holy fathers themselves were the great patrons of those to whom we owe the revival of Pagan art."

"Has not the desecration of churches been carried forward almost as much by Roman Catholics as even by the Puritans? We have the testimony of Pugin himself to the well-known fact, that the sacred structures of this country retain more of their ancient character, have suffered less from the introduction of Pagan art, than those of any other. We seldom find, in England, that injury has been carried on in our ancient churches to such a reckless extent, as is admitted in the following, which we quote from the 'Apology': 'Modern Catholic ecclesiastical, in France and Belgium, have not only taken out the stained glass, the moulded tracery also, by way of lighting the church.' Where can we meet with a Gothic church upon the Continent, undeformed by the introduction of Pagan art, in the forms of statues, screens, baldachini, coffered ceilings, and other incongruities?"

"Finally, let us ask, if Protestantism and true principles of art be inconsistent with each other, how is it that Protestant England, and the Protestants of England, have led the way in the revival of Gothic art?"

#### THE NEW PNEUMATIC ENGINE.

AT the soirée of the Marquis of Northampton on Saturday week, Mr. Reineke reproduced, in a more complete form, his metallic model for the air power, as intended to be applied to locomotive engines, whether for railway use or for common roads. It appeared from that gentleman's statement that the scale and proportions of his model would not allow, without a monstrous appearance, the air-balls, and especially the three-trigger valves, such as used for air-guns, to be shown in conjunction with the other parts. In the event of the numerous anxious investigations, it was understood that the carriage engine, with all its adjuncts completely fitted, would be ready for the next soirée, when another form for locomotion, using the Archimedeum screw to work against the atmosphere, was promised for exhibition, and, if we mistake not, means are to be employed to prove by demonstration the combined power and economy of the moving agent (compressed air) which many persons could not sufficiently comprehend by the explanations offered. The model of this pneumatic engine certainly has taken its full share of attention, and has provoked learned mathematical and pneumatic discussions, in which, on Saturday, Mr. Reineke was displayed both pro and con. Mr. Oliver Byrne was most active in defending Mr. Reineke's principles against what he termed the old-fashioned doctrine "that it costs as much to produce power as the power imparted." Mr. Reineke was strenuous in his endeavours to convince his dubious audience—for several attacked his assertions—that

his discoveries "had completely overturned that doctrine, the very extinguisher of genius, and the bar to all attempts to overcome long-established error." He demonstrated by simple the immense difference there was in his invention between all beam action steam power, and his faculty to fit several beams, carrying the moving power at the extremity of each beam, working upon the principle of a high-pressure engine; that is to say, by injections of compressed air, by trigger movement, to give one series of lifting air-vessels arranged along a cross-bar uniting the four, five, or six beams, and at the same moment discharging similar air in similar quantities, to depress the lower valves of the opposite lower range of air-vessels. This action, he contended, brought the beam movement to a mere screw, without the smallest strain. Thus, if four beams, twenty feet in length, and the communication of power is placed on each side of the axis, at four equal distances, driving down wheels to move machinery or work water-pumps for mines, he converts this power at the end of each beam into eight times the first power, because it works agreeably with the known law of the lever, and the power is multiplied. If when the complete model is submitted, we will further enter on the assertion of the inventor, that he can make engines of any amount of horse-power; for he, no doubt, will be again called upon to further explain by model the assertion he has confidently put forward in assembly of scientific individuals, connected with the first learned bodies in the world, that he can overcome the enormous levitation moving power equal to 320,000 horses. It is but due to the inventor to say he had many attentive listeners, and that, from his explanations, they were, with one or two exceptions, favourable in his views, and thought it probable and possible to bring his engine to operate with success.

#### GRAMMAR-SCHOOLS.

THERE are few counties in Great Britain which have so many endowed grammar-schools as Westmorland to boast of; and taking a radius of twenty miles round Kendal there is no district of equal circumference, and where there is only an agricultural population, which contains as many free schools where youth may receive the best instruction at so cheap a rate, in many cases, no expense to the parent, when residing within a short distance therefrom. We may enumerate Kendal, Seaberg, Grayrigg, Hawkehead, Heversham, Burton, Carniel, Lencaster, Giggleswick, and in some measure Kirky-Lonsdale. And how are many of these schools conducted? At Burton the endowment is entirely lost for and the school is becoming one of the poorest, in whom the right of appointment is vested, wish there should be (the visitor at their head) one description of master put into the school contrary to the provisions in the will by which it is endowed, and the other act wish to adhere to the letter of the endowment; but it would be invidious and censorious to specify all or enumerate the different cases of mismanagement or bad government of those schools, many of which have rich exhibitions for supporting youths at the English Universities who have been educated at these schools, either from the negligence, immoral conduct, inebriety, incapacity, or age of the persons holding the situation of master, or from any other infirmity of person or character, and the consequence is to bring under public notice the poverty of trustees and visitors, contained in the Act 33 & 4 Victoria, esp. 77, intitled, "An Act for improving the condition and extending the benefits of grammar-schools." By section 10, Courts of Equity are empowered, whenever a question comes before them, to make orders or decrees extending the system of education and the right of admission into any school, and to establish schemes for the application of its revenues, having due regard to the intention of the founder. By section 17, stating it is expedient to provide for the more easy removal of unfit and improper masters, "it is declared and enacted that it shall be lawful for the Court of Chancery to empower any persons having powers of visitation in respect of the discipline of any school, or who shall be specially appointed to exercise the same under that Act, and the governors, or either of them, after such inquiries, and by such order of proceeding as the Court shall direct, to remove any master of any grammar-school who

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